

Imperatives: the relation between meaning and form*

Renate Raffelsiefen

To evaluate claims of non-arbitrary relationships between meaning and form in morphology it is necessary to understand how complex expressions are formed. Specifically, to determine whether a certain category is encoded by an affix, "zero morph", stem modification, or subtraction it is necessary to compare the expression of a derived form with that of the base. The much neglected but non-trivial prerequisite is proper identification of the base. Consider the rule for Latin in (1) (cf. Matthews 1991²: 194):

- | | | |
|-----|------------|-------------|
| (1) | Present | First |
| | Infinitive | Singular |
| | Active | Imperfect |
| | | Subjunctive |
| | [X] | → [Xm] |

According to the rule in (1) the first singular imperfect subjunctive is formed by adding *-m* to the surface form of the present infinitive active. That is, the word form in the left-hand column in (1) is identified as the phonological, but not the morphosyntactic or semantic, base of the first singular imperfect subjunctive. The rule is illustrated in (2):

- | | | | |
|-----|-----------------|------------------|--------------------|
| (2) | <i>vo'care</i> | <i>vo'carem</i> | 'I would call' |
| | <i>mo'nere</i> | <i>mo'nerem</i> | 'I would admonish' |
| | <i>'pellere</i> | <i>'pellerem</i> | 'I would push' |
| | <i>'esse</i> | <i>'essem</i> | 'I were' |

Matthews (1991: 195), who cites the Latin grammarian Priscian as an inspiration for positing the type of rule (1), comments as follows:¹ "On the semantic plane, the transformation cuts across the paradigm. But it is justified because the rule is formally both simple and absolute."

While most linguists would presumably be willing to grant that the rule in (1) has didactic value as a mnemonic device, few would be willing to posit such rules in morphological descriptions.² However, although it is conceivable that the effect described by the rule in (1) is accidental for words derived by regular morphological rules, it is implausible to attribute to pure chance the applicability of the rule to irregular verbs like *essee*. This is because there is strong evidence that such forms are learned by rote memorization and stored as unanalyzed units (cf. Bybee 1985).

Based on material from some middle and northern European languages, it will be shown below that once Priscian rules are allowed, the relation between meaning and form in imperative formation is more homogeneous than is commonly assumed.

1. The typology of imperative formation

So-called imperative paradigms are typically characterized by both formal and semantic non-uniformity. In Finnish there are distinct case markings for the direct object in second and third person as is shown in (3):

- | | | | |
|-----|-------------|--|--------------------------------------|
| (3) | Indicative: | <i>Syön omenan</i>] _{Akk I.} | 'I eat the (whole) apple.' |
| | Imperative | | |
| | 2: | <i>Syö omena</i>] _{Akk II = NOM !}
(* <i>Syö omenan</i>) | 'Eat the apple!' |
| | 3: | <i>Syököön (vain) omenan</i>] _{Akk I.} | 'Let him/her eat the (whole) apple.' |

In Latvian, the alleged third person imperative also differs from the second person imperative in that object pronouns precede the verb. Semantically only second person imperatives express direct commands whereas the mood of the first or third person forms is often referred to as "optative" or "hortative". For these reasons, imperatives are here understood narrowly as semifinite categories which exhibit neither tense nor person contrasts (cf. Eisenberg 1998: 195).³ The restriction of imperatives to direct commands, known as "imperative proper", is essential for a study of the relation between meaning and form, as can be inferred from Greenberg (1966: 47): "Hortatives then, whether confined

to the first and/or third persons or including also a second person distinct from the imperative, show the characteristics of marked categories. On the other hand, imperatives proper often have zero expression, particularly in the singular.” Somewhat mysteriously, Greenberg continues as follows: “In such cases, however, there is sometimes a difference of stress pattern or in other suprasegmentals so that the form is not in fact a ‘pure stem’ form.”

As will be shown, the effect described by Greenberg indicates the following common pattern of imperative formation, which describes the clipping of final segments from a surface word form. The rule is intended as a redundancy rule describing a counter-iconic relation:

- (4) Word form Imperative
 Singular
 [XS] → [X]

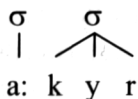
Bybee (1985) does not mention clipping but instead states that imperatives are often formed by zero markers or suffixes, thereby arguing for non-iconic or iconic markings. Below I will argue that several cases, where zero markers or suffixes are commonly posited, turn out to represent the pattern in (4) when inspected more carefully. The assumption that imperatives tend to correspond directly to bare stems is sometimes explained as a consequence of their primary function (cf. Korhonen 1967: 164, 167).⁴ Evidence for clipped imperatives is significant then in that it shows that imperatives are derivative.

2. Norwegian, Danish

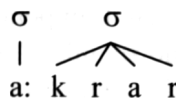
In grammars of Norwegian Bokmål, it is usually claimed that imperatives are based directly on stems (cf. Faarlund, Lie and Vannebo 1997). To evaluate this claim, consider the different phonological effects of stem derivation versus clipping illustrated with examples from Icelandic. Words derived from stems necessarily exhibit “repair” to match the regular phonological patterns in the language. For example, the bare stem /*akr*/ undergoes epenthesis to satisfy the constraint SON in (6), which refers to the sonority hierarchy in (7). Epenthesis does not apply if a vowel-initial suffix follows because the cluster *kr* violates SON only in coda position.

(5)

/akr/



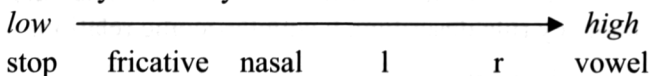
/akr+ar/



(6) SON

Sonority increases in the syllable head and decreases in the coda.

(7) Sonority hierarchy

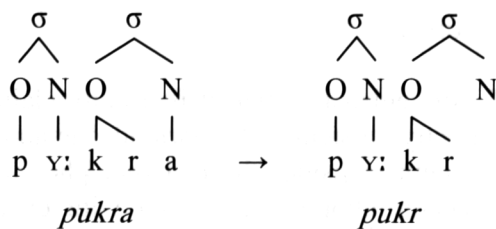


Compare the relation between the abstract stem /akr/ and the surface form [a:kyr] with the examples of clipping in (8):⁵

- (8) [pɥ:kra] *pukra* 'to whisper' [pɥ:kr] *pukr* 'whisper'
 [klɪ:fra] *klifra* 'to climb' [klɪ:r] *klifr* 'climbing'

Clippings are by definition based on surface forms. The violation of regular prosody exhibited by the clippings in (8) indicates the effect of segmental deletion without any concomitant restructuring of syllabic associations. That is, in the clipped forms, open syllable lengthening applies but epenthesis does not, as if the final consonant cluster were invariably associated with onset position. Crucially, there is no adjustment or repair.

(9)



Consider now the imperatives in (10) in southern and western Norwegian dialects (cf. Kristofferson 1991: 247):

- (10) [syk:lə] *sykle* 'to go by bicycle' [syk:l]!
 [o:pne] *opne* 'to open' [o:pn]!
 [vo:knə] *vokne* 'to wake up' [vo:kn]!

The monosyllabic imperative [syk:l] violates regular phonotactics, thereby differing from the related noun [syk:əl], which exhibits regular prosody. The irregular application of open syllable lengthening in [o:pn] or [vo:kn] also indicates the origin of the imperatives as clipped forms. Interestingly, in Oslo such imperatives are accepted only if followed by a vowel-initial word, but are judged ungrammatical and avoided otherwise (cf. Kristofferson 1991: 247)

- (11) $\sqrt{\text{sykl}}$ *ut!* 'go out by bicycle!'
 **sykl no!* 'go now by bicycle!'

The pattern in (11) makes sense because the combination with a vowel-initial word is the only type of "repair" available to a clipped form with final sonority-increase. Bokmål imperatives accordingly fit the pattern in (4). Kristofferson (1991) also concludes that Bokmål imperatives are formed by clipping based on surface word forms, but this finding goes unmentioned in the description in Faarlund, Lie and Vannebo (1997), which suggests non-iconic imperative formations.

For Danish, Mikkelsen (1894: 209) claims that imperatives are based on stems, but he also observes that imperatives ending in a cluster with increasing sonority are combined with vowel-initial words by poets and paraphrased by the ordinary speaker.⁶ This type of prosodic sensitivity reeks of clipping. Eighty years later, the analysis of Danish imperatives as clipped surface forms has been firmly established by the evidence from *stød*. Andersson (1975), who refers to the description in Basbøll (1969), shows that the occurrence of *stød* in Danish imperatives cannot be explained on the basis of stem phonology but requires reference to longer surface forms. It is unfortunate that the phonological evidence has been ignored in Danish grammars. For example, in the comprehensive grammar of Danish by Allan, Holmes, and Lundskær-Nielsen (1995), we are again informed that Danish imperatives are based directly on stems and involve Zero marking. Norwegian Bokmål and Danish are thus two languages which are generally claimed to have zero marking but for which careful phonological analysis indicates formation by clipping. Moreover, the special phonology resulting from clipping fits Greenberg's notion of "impure" stems.

3. Imperatives in German

In Old High German, singular imperatives of strong verbs are generally monosyllabic whereas imperatives of weak verbs end in an unstressed vowel *-e*, *-o* or *-i*.⁷ For Middle High German, Paul, Wiehl, and Grosse (1989: 254) note that the */-e/* (i.e. the reduced vowel reflecting Old High German *-e*, *-o*, *-i*) fails to appear after short */r/* and */l/* preceded by a short stressed vowel even in weak verbs. There is evidence that this particular gap relates to the overall distribution of schwa in the respective paradigms as is illustrated in (13):

(13)	Imp.	a.	<i>mach</i> [ə]!	<i>still</i> [ə]!	b.	<i>hol</i> !	<i>ner</i> !
			'make!'	'nurse!'		'call!'	'cure!'
	SG	1	<i>mach</i> [ə]	<i>still</i> [ə]		<i>hol</i>	<i>ner</i>
		2	<i>mach</i> [ə] <i>st</i>	<i>still</i> [ə] <i>st</i>		<i>holst</i>	<i>nerst</i>
		3	<i>mach</i> [ə] <i>t</i>	<i>still</i> [ə] <i>t</i>		<i>holt</i>	<i>nert</i>
	PL	1	<i>mach</i> [ə] <i>n</i>	<i>still</i> [ə] <i>n</i>		<i>holn</i>	<i>nern</i>
		2	<i>mach</i> [ə] <i>t</i>	<i>still</i> [ə] <i>t</i>		<i>holt</i>	<i>nert</i>
		3	<i>mach</i> [ə] <i>nt</i>	<i>still</i> [ə] <i>nt</i>		<i>holnt</i>	<i>nernt</i>

Verbal paradigms in Middle High German are characterized by a uniform distribution of schwa. That is, schwa occurs either in all members of a paradigm or in none. The distinguishing trait of schwa-paradigms is the inclusion of at least one member which requires schwa to satisfy constraints on syllabic wellformedness. Specifically, given that the most sonorant suffix in the verbal paradigm is *-n*, it follows that all stem-final consonants other than *-l* and *-r* need the schwa to satisfy the constraint SON defined in (6) (cf. *mach*[ə]*n* instead of **machn*). The preference for uniform paradigms explains the occurrence of the schwa in the remaining members. Similarly, the relevance of both vocalic and consonantal length for the occurrence of schwa indicates that both types of segments still exhibit moraic contrast such that the presence of schwa is needed to satisfy a limit on maximal weight in stressed syllables. In Middle High German, the weight of a syllable with either a long vowel or a long consonant exceeds the weight of a syllable with a short vowel followed by a short consonant. Schwa is accordingly needed to break up heavy syllables such as **[ma:lt]* (cf. the bimoraic syllable in the actual form [ma:.lət] 'paints') or **[stil:t]* (cf. the bimoraic syllable in the actual form [stil.lət] 'nurses'), whereas lighter syllables

such as [holt] 'calls' or [nert] 'cures' do not exceed maximal syllable weight and are therefore schwaless.

Assuming that the occurrence of schwa in (13) is indeed determined by constraints on syllabic wellformedness which inherently affect specific suffixed forms in the paradigm, the question arises of how to analyse the (secondary) effect on the imperative forms. One possibility is to include the imperative forms in the paradigm, with the result that they are affected directly by leveling. There are two reasons for rejecting such an analysis. First, it can be shown that Middle High German leveling in general affects narrowly defined paradigms where members must not differ in tense. Semifinite tenseless forms like imperatives, accordingly, do not belong to present tense paradigms. Second, the inclusion of imperative forms in paradigms would entail many exceptions for strong verbs to otherwise perfect leveling, as is illustrated in (14):

(14) Imperative *nim!* 'take'

SG	1	<i>nim</i> [ə]
	2	<i>nim</i> [ə] <i>st</i>
	3	<i>nim</i> [ə] <i>t</i>
PL	1	<i>nēm</i> [ə] <i>n</i>
	2	<i>nēm</i> [ə] <i>t</i>
	3	<i>nēm</i> [ə] <i>nt</i>

For these reasons I suggest that Middle High German imperative forms indicate the type of rule shown in (15). I leave open here the question of which exact form is chosen as the base.

(15)	Singular	Imperative
	Present	Singular
	Indicative	
	Weak	
	XY	→ X

Paul, Wiehl, and Grosse (1989: 254) note that the imperative /-e/ occasionally extends to strong verbs in analogy to weak verbs (cf. *nime!*, 'take!' *gibe!* 'give!' *tribe!* 'drive!'). However, this observation does not necessarily warrant the conclusion that there is a spreading suffix but rather indicates that the rule in (15) generalizes to the effect that the feature "weak" loses relevance. The latter interpretation is supported by the subsequent development. That is, the strict ungrammaticality of "e-

suffixation" to the New High German reflex of Middle High German *nime!*, i.e. *nimm!*, is unexpected, given the notion of a spreading suffix. By contrast, the ungrammaticality is explained by the type of rule shown in (15), as can be inferred from the members of the current paradigm:

- (16) Imperative *nimm!* 'take!'
- | | | |
|----|---|-----------------|
| SG | 1 | <i>nehm[ə]</i> |
| | 2 | <i>nimmst</i> |
| | 3 | <i>nimmt</i> |
| PL | 1 | <i>nehm[ə]n</i> |
| | 2 | <i>nehmt</i> |
| | 3 | <i>nehm[ə]n</i> |

The claim is then that the strict ungrammaticality of New High German **nimme!* is a direct consequence of the non-existence of forms like **nimme!*, **nimmet*. There simply is no form in the paradigm where a stem with "vowel raising" co-occurs with schwa. Similarly, the marginal acceptability of the imperative *komme!* of the strong verb *kommen* 'to come' is a direct consequence of the existence of the word forms in the paradigm in (17) in which the stem *komm-* does co-occur with schwa.

- (17) Imperative *Komm!* ?*Komm[ə]!*
- | | | |
|----|---|--------------------------------|
| SG | 1 | <i>komm[ə]</i> (<i>komm</i>) |
| | 2 | <i>kommst</i> |
| | 3 | <i>kommt</i> |
| PL | 1 | <i>komm[ə]n</i> |
| | 2 | <i>kommt</i> |
| | 3 | <i>komm[ə]n</i> |

The imperative *komme!* is comparable to the alternative comparative of *nehmen*, i.e. *nehme!*, which also has an archaic ring.⁸ This observation suggests the following rules:

- (18) a. Standard New High German: b. Archaic German:
- | | | | |
|---------------|------------|--------------|------------|
| Second Person | Imperative | First Person | Imperative |
| Present | Singular | Present | Singular |
| Indicative | | Indicative | |
| [Xst] | → X | [X] | → X |

According to the rules in (18), the imperative forms are inferred directly from finite forms in the paradigm. In (19), the forms marked with '√' are inferred by rule (18a), those marked with '?' are inferred by rule (18b), and those marked with '*' cannot be inferred. According to the rules in (18), the distinction between weak and strong verbs is no longer relevant for imperative formation in New High German: *geben* 'to give' and *heben* 'to lift' are strong verbs, whereas *leben* 'to live' is a weak verb.

- (19) a. SG 1 gebe ?gebe!
 2 gibst √gib!
 3 *gibt* **gibe*!
- b. SG 1 hebe ?hebe!
 2 hebst √heb!
 3 *hebt* **hib*! **hibe*!
- c. SG 1 lebe ?lebe!
 2 lebst √leb!
 3 *lebt* **lib*! **libe*!

The choice of the second rather than the third person as a base for imperative formation is called into question by a certain type of neutralization occurring in the second person singular indicative. The examples in (20) show that a rule based on the third person forms (i.e. $Xt \rightarrow X$), which are not affected by neutralization, would yield the correct imperative forms:

- (20) a. SG 2 [fli:st] *flieβt* **[fli:]!* (cf. (18a))
 3 [fli:st] *flieβt* √*[fli:s]!* (based on $Xt \rightarrow X$)
 flieβ 'flow!'
- b. SG 2 [fli:st] *fliehst* √*[fli:]!* (cf. (18a))
 3 [fli:t] *flieht* √*[fli:]!* (based on $Xt \rightarrow X$)
 flieh 'flee!'

However, additional data indicate both the relevance of the second person as a base for imperative formation and the cause of ungrammaticality in (20a). Consider the judgments in (21):

(21)	SG 1	<i>werde</i>	<i>trete</i>	<i>gelte</i>	<i>fechte</i>	<i>flechte</i>
	2	<i>wirst</i>	<i>trittst</i> ,	<i>gil(t)st</i> ,	<i>fich(t)st</i> ⁹	<i>flich(t)st</i>
	3	<i>wird</i>	<i>tritt</i>	<i>gilt</i>	<i>ficht</i>	<i>flicht</i>
		√ <i>werde!</i>	√ <i>tritt!</i>	√ <i>gelte!</i>	√ <i>fechte!</i>	√ <i>flechte!</i>
		* <i>wird!</i>	? <i>trete!</i>	? <i>gilt!</i>	? <i>ficht!</i>	? <i>flicht!</i>
		'become!'	'kick!'	'be valid!'	'fence!'	'braid!'

The interpretation of the variation in (21) is complicated by the fact that the verbs differ considerably in frequency. Yet, a striking phonological generalization emerges from those data. The ungrammaticality of the imperative **wird!* correlates with the obligatory absence of the stem-final stop in the second person singular (i.e. *wirst* rather than **wirdst*). In other words, the imperative **wird!* is ungrammatical because there is no precedent for this form in the relevant slot of the paradigm (i.e. the second person singular indicative). The preference for the imperative *tritt!* correlates with the obligatory presence of the stem-final stop in the second person (i.e. *trittst* rather than **trist*). The variation in the remaining cases correlates with the phonologically conditioned variable pronunciation of the stem-final stop (e.g. *fichtst* ~ *fichst*). The generalization suggested by these patterns is that imperatives are based on the second person singular unless that form has a deficient stem. Stem deficiency is also the cause of ungrammaticality in (20a).

Assuming that this generalization is correct, the data in (21) not only indicate the relevance of the second person singular for determining imperatives but also reveal the inadequacy of a simple Priscian rule which operates in a strictly syntagmatic fashion. Rather, the recognition that the stem *wir-* in *wirst*, but not *tritt-* in *trittst*, is incomplete requires reference to other forms in the respective paradigms.¹⁰ Additional evidence for the need to consult multiple forms in the paradigm to form imperatives concerns umlaut alternations. The data in (22) show that both second and third person forms are rejected as a base for imperative formation when they exhibit umlaut. The right-most example in (22) shows that the problem is not caused by umlaut per se; the problem is again solved by basing imperatives on the first person in such cases (the rule will be stated in (26b) below).

(22) SG 1	<i>fahre</i>	<i>wasche</i>	<i>stärke</i>
2	<i>fährst</i>	<i>wäschst</i>	<i>stärkst</i>
3	<i>fährt</i>	<i>wäscht</i>	<i>stärkt</i>
	√ <i>fahr!</i>	√ <i>wasch!</i>	√ <i>stärk!</i>
	? <i>fahre!</i>	? <i>wasche!</i>	? <i>stärke!</i>
	** <i>fähr!</i>	** <i>wäsch!</i>	
	'go!'	'wash!'	'strengthen!'

What exactly is the property of umlaut (as opposed to vowel raising exemplified above) which causes the remarkably strict unacceptability? Significantly, the same judgments are found in German dialects where vowel alternations differ from those in the standard language. The examples below are from Linkeler Platt, a dialect spoken east of Cologne:

(23) SG 1	<i>ȳa:rən</i>	<i>ko:fən</i>	
2	<i>ȳi:rš</i>	<i>kö:fs</i>	
3	<i>ȳi:rt</i>	<i>kö:ft</i>	
	√ <i>ȳi:r!</i>	√ <i>ko:f!</i>	** <i>kö:f!</i>
	'go!'	'buy!'	

A possible cause relates to markedness: umlaut alternations always involve an increase in segmental markedness (e.g. *ö* vs. *o*), whereas the other alternations do not exhibit this property (e.g. *i* vs. *e*). Consider next the imperative forms of trochaic second person forms.

(24) SG 1	<i>wackele, wackle, wackel</i>
2	<i>wackelst</i>
3	<i>wackelt</i>
	<i>wackle! wackel! ?wackele!</i>
	'wobble!'

Here the choice of the first person as a base is both necessary and sufficient for describing the variation in imperative forms. The generalization is that final schwa is dropped unless it is necessary for pronunciation. For instance, in *wackle*, final schwa is necessary to satisfy SON (**wackl*). In *predige*, another verb with a trochaic second person form, final schwa is necessary to satisfy a constraint which prohibits voiced obstruents in coda position (**predi*[g]).¹¹ Imperatives for which final schwa is not phonologically conditioned are associated with a different register and are described by rule (18b).

- (25) SG 1 *prédige*
 2 *prédi[ç]st* 'predigst'
 3 *prédi[ç]t* 'predigt'
 prédige!
 **prédi[g]!*
 'preach'

To ensure that the formation of the imperatives in (24, 25) is based on the first rather than the second person (cf. **prédi[ç]!*), the rule for forming imperatives on the second person can be made sensitive to stress. As a result of specifying stem-final stress in rule (26a) that rule takes precedence by the Elsewhere Condition. For all rules it holds that imperatives are not based on word forms with incomplete stems or (alternating) umlaut.

- | | | | | |
|------|----|------------------|---------------|------------------------|
| (26) | a. | Second Person | | Imperative |
| | | Present | | Singular |
| | | Indicative | | |
| | | $X^1\sigma(e)st$ | \rightarrow | $X^1\sigma(e)$ |
| | b. | First Person | | Imperative |
| | | Present | | Singular |
| | | Indicative | \rightarrow | |
| | | Xe | | X (if pronounceable) |
| | | | | Xe (otherwise) |

The reason for specifying stem-final rather than word-final stress relates to inflected forms with epenthetic schwa, such as '*ar_ibeitest*' '(you) work', '*rette_ist*' '(you) save'.¹² Here rule (26a) should apply to make sure that the schwa appears in the imperative forms, even though it is not needed on phonological grounds.

In all cases, imperative forms are substrings of inflected present tense surface forms: schwa is sometimes obligatory, sometimes impossible, and sometimes marked (archaic), depending on the distribution of schwa in the forms serving as precedents (as well as on pronounceability).

The refusal to recognize Priscian rules entails considerable loss of generalization. Consider the description of imperative formation in Drosdowski (1984: 174): "Some 'ablauting' verbs form the imperative singular by changing the *e* (*ä*, *ö*) of the present tense stem to *i* (*ie*); -*e* is

not attached.” A list of the relevant formations follows (*lies!*, *wirf!*, *birg!*, *stirb!* ...).

The formulation “some ablauting verbs” misses the true generalization determining the applicability of “vowel raising” in imperatives: the rule affects precisely those verbs which have a raised vowel in the second or third person. That is, both *geben* ‘give’ and *heben* ‘lift’ are characterized by ablaut (i.e. *geben*, *gab*, *gegeben*; *heben*, *hob*, *gehoben*), but the paradigm of only *geben*, and not of *heben*, includes raised stems and, consequently, raised imperatives. In addition, rule (26) accounts for historical changes in imperative forms. As a result of the regularization undergone by verbs like *löschen* (cf. \uparrow *lischst* > *löscht*) or *melken* (cf. \uparrow *milkst* > *melkt*), the corresponding imperatives disappear as well (cf. \uparrow *lisch!* > *löscht(e)!*, \uparrow *milk!* > *melk(e)!*). The second major problem with the description in Drosdowski concerns the seemingly disconnected statement “-e is not attached.” As has been emphasized above, on the assumption that there is no imperative suffix -e, the ungrammaticality of *liese!* can be explained as a direct consequence of the nonexistence of finite forms like **liesest*, **lieset*.¹³

Consider three additional rules for *e*-suffixation stated in Drosdowski (1984: 174):

- (27) a. The imperative -e is generally attached to verbs whose stem ends in -d or -t.
 b. The imperative -e is generally attached to verbs whose stem ends in /m/ or /n/ preceded by a consonant.
 c. The imperative -e is not attached to verbs whose stem ends in /m/ or /n/ preceded by /m/, /n/, /l/, /r/ or single /h/.

In all cases, it can be shown that the generalizations, including occurring variations, follow straightforwardly from the distribution of schwa in the second person singular of the relevant paradigms:

- (28) a. *arbeitest* (**arbeitst*) *leidest* (**leidst*) *redest* (\uparrow *redst*)
 \downarrow *arbeite!* **arbeit!* \downarrow *leide!* **leid!* \downarrow *rede!* \uparrow *red!*
 ‘work!’ ‘suffer!’ ‘talk!’
- b. *atmest* (**atmst*)
 \downarrow *atme!* **atm!*
 ‘breathe!’

c. <i>kämmst</i> (* <i>kämmest</i>)	<i>lernst</i> (* <i>lernest</i>)
√ <i>kämm!</i>	√ <i>lern!</i>
'comb!'	'learn!'

The description in Drosdowski (1984) wrongly suggests the existence of an imperative suffix in German.¹⁴ In reality, German mostly fits the pattern in (4) (cf. rules (26a, b)) and partially exemplifies "zero derivation" (cf. rule (18b, 26b)). German differs from Norwegian and Danish in that the evidence for Priscian imperatives is based not on phonological "irregularities" resulting from clipping but on distributional evidence (e.g. the distribution of raised vowels, schwa).

4. Imperatives in Icelandic

In Icelandic, imperatives are always followed by a subject clitic (cf. colloquial German *hören Sie!* → [hørnzə] 'hear!'). The imperative stems typically end in a consonant, except for class IV verbs, which end in *-a*. The formations are thus generally described as shown in (29) (the exclamation mark is not used in Icelandic):

- (29) *heyr+þú* ⇒ *heyrðu!* 'hear!'
kalla+þú ⇒ *kallaðu!* 'call!'

For some verbs, we find both a form described by the rule in (29) and a seemingly idiosyncratic form. Examples are given in (30):

- (30) a. *kaup+þú* b. *kauptu!* c. *keyptu!* 'buy!'
 yrk+þú *yrktu!* *ortu!* 'build!'
 sæk+þú *sæktu!* *sóttu!* 'fetch!'

Assuming the inputs in (30a) the forms in (30c) have the appearance of relics doomed to become obsolete. However, Orešnik (1981) informs us that the forms in (30c) are the innovative colloquial variants, whereas the seemingly "regular" formations in (30b) are archaic. Helgason (1970) identifies the source of the innovative forms: they are based on the third person plural preterite forms. The relevant paradigms are given in (31):

(31)		Present	Preterite
	SG 1	<i>kaupi</i>	<i>keypti</i>
	2	<i>kaupir</i>	<i>keyptir</i>
	3	<i>kaupir</i>	<i>keypti</i>
	PL 1	<i>kaupum</i>	<i>keyptum</i>
	2	<i>kaupið</i>	<i>keyptuð</i>
	3	<i>kaupa</i>	keyptu
	SG 1	<i>yrki</i>	<i>orti</i>
	2	<i>yrkir</i>	<i>ortir</i>
	3	<i>yrkir</i>	<i>orti</i>
	PL 1	<i>yrkjum</i>	<i>ortum</i>
	2	<i>yrkið</i>	<i>ortuð</i>
	3	<i>yrkja</i>	ortu
	SG 1	<i>sæki</i>	<i>sótti</i>
	2	<i>sækir</i>	<i>sóttir</i>
	3	<i>sækir</i>	<i>sótti</i>
	PL 1	<i>sækjum</i>	<i>sóttum</i>
	2	<i>sækið</i>	<i>sóttuð</i>
	3	<i>sækja</i>	sóttu

The innovative imperatives in (30) thus indicate the prime example of a Priscian rule in (32):

(32)	Third Person	Imperative
	Plural	Singular
	Preterite	
	Indicative	→
	X	X

It seems clear that rule (32) originates from the coincidental homophony between cliticized imperative forms such as *heyr+pú* → *heyrðu* and the third person plural preterite of weak verbs where the dental suffix is followed by *u*.

(33)	SG 1	<i>heyri</i>	<i>heyrði</i>
	2	<i>heyrir</i>	<i>heyrðir</i>
	3	<i>heyrir</i>	<i>heyrði</i>

PL 1	<i>heyrum</i>	<i>heyrðum</i>
2	<i>heyrið</i>	<i>heyrðuð</i>
3	<i>heyra</i>	heyrðu = <i>heyrðu</i> < <i>heyrþú</i>

One factor which may have prompted speakers to construct rule (32) relates to the fact that the subject clitic is on its way to becoming further grammaticalized into an imperative suffix. On this hypothesis, speakers are reluctant to form imperatives proper iconically (i.e. by suffixation) and opt for zero derivation instead. Another factor concerns the (even for native speakers) formidable allomorphy found in imperative singular cliticization. Specifically, the junctures involving obstruents give rise to speech errors and uncertainties. Some examples for such junctures are listed below (cf. Pétursson 1992: 121):

- (34)
- | | | | |
|--------------|---|-----------|------|
| $\delta + p$ | > | <i>dd</i> | [t:] |
| $f + p$ | > | <i>fð</i> | [vð] |
| $d + p$ | > | <i>t</i> | [t] |
| $g + p$ | > | <i>gd</i> | [kt] |
| $k + p$ | > | <i>kt</i> | [xt] |
| $p + p$ | > | <i>pt</i> | [ft] |
| $t + p$ | > | <i>tt</i> | [ht] |

It seems natural that speakers prefer to fall back on already familiar forms in the paradigm instead of tediously constructing forms according to the rules in (34). However, there is one case where speakers systematically shun the convenient third person plural preterite: that form is never used when it exhibits (alternating) umlaut. In such cases, speakers choose a stem which supplies the relevant allomorphy without umlaut and attach the vowel *-u*. As a result, the imperative of the verb *etja* 'to egg on' is neither *ettu*, nor *öttu*, but *attu*:

- (35)
- | | | |
|------|--------------|--------------|
| SG 1 | <i>et</i> | <i>atti</i> |
| 2 | <i>etur</i> | <i>attir</i> |
| 3 | <i>etur</i> | <i>atti</i> |
| PL 1 | <i>etjum</i> | <i>öttum</i> |
| 2 | <i>etjið</i> | <i>öttuð</i> |
| 3 | <i>etja</i> | <i>öttu</i> |

Orešnik (1981) considers the output *attu* (rather than *öttu*) evidence for the incorrectness of Helgason's generalization stated in (32) and

concludes that imperative singulars are based on second person singular preterite in (better) accordance with semantics. However, his conclusion lacks cogency since we know independently from German that umlaut forms are systematically avoided as bases for imperative formation and that imperatives need not be based on a unique word form (cf. rule (26)).

Additional evidence against “synthetic” formations of imperatives can be gleaned from imperatives with emphatic subjects. The relevant forms are not those shown in (36a) but rather the clipped forms shown in (36b) (cf. Orešnik 1980):

- (36) a. ??*kaup þú* b. *keypt þú!*
 ??*yrk þú* *ort þú!*
 ??*sæk þú* *sótt þú!*

The type of emphatic imperatives shown in (36a) occurs regularly for class IV verbs (e.g. *kalla þú!*). This observation correlates with the fact that rule (32) never applies to class IV verbs, which necessarily have umlaut in the third person plural preterite (e.g. *kölluðu*).¹⁵

5. Finnish

Historically, Finnish imperatives singular were formed by *k*-suffixation, as shown in (37a). Such forms still exist in some dialects, in Southwestern dialects, the *-k* has vanished, as is shown in (37b):

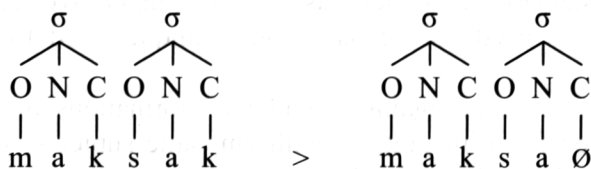
- (37) *maksaa* ‘to pay’ a. *maksak!* b. *maksa!*
 antaa ‘to give’ *annak!* *anna!*
 vetää ‘to pull’ *vedäk!* *vedä!*
 hakata ‘to beat’ *hakkaak!* *hakaa!*

In Standard Finnish, however, the *-k* is claimed to have left a reflex. This reflex is manifested in gemination, when a consonant-initial word follows, and in the occurrence of a glottal stop, when a vowel-initial word follows. Examples are given in (38):¹⁶

- (38) <maksa pois> *maksa*[pp]*ois!* ‘Pay, will you!’
 <maksa omena> *maksa*[ʔo]*mena!* ‘Pay for the apple!’

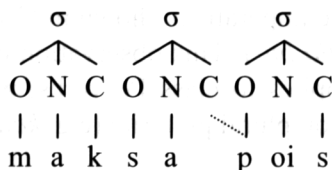
A possible representation of the imperative reflex in Finnish is the empty coda node in (39), which remained after the loss of the segment:

(39)

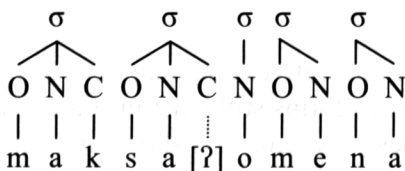


The empty coda is then associated with a following consonant, giving rise to ambisyllabicity (reflected in segmental length) or, if there is no following consonant, it is filled by a glottal stop.¹⁷

(40) a.



b.



While the phonological effects described above are generally analysed in terms of reflexes of the historical imperative suffix, there is evidence for a historical re-analysis of the reflex. Consider first the relation between imperative forms and other forms in the paradigm illustrated below (cf. Karlsson 2000: 181)

(41) Infinitive		1. Pers. SG Present Tense	Imperative Singular
<i>anta/a</i>	'to give'	<u>annan</u>	<u>anna</u> [ʔ]
<i>vetä/ä</i>	'to pull'	<u>vedän</u>	<u>vedä</u> [ʔ]
<i>sulke/a</i>	'to close'	<u>suljen</u>	<u>sulje</u> [ʔ]
<i>luke/a</i>	'to learn'	<u>luen</u>	<u>lue</u> [ʔ]

<i>avat/a</i>	'to open'	<i>avaan</i>	<i>avaa</i> [ʔ]
<i>maat/a</i>	'to lie'	<i>makaan</i>	<i>makaa</i> [ʔ]
<i>tavat/a</i>	'to find'	<i>tapaan</i>	<i>tapaa</i> [ʔ]
<i>määrät/ä</i>	'to determine'	<i>määrään</i>	<i>määrää</i> [ʔ]
<i>hakat/a</i>	'to beat'	<i>hakkaan</i>	<i>hakkaa</i> [ʔ]
<i>tarjot/a</i>	'to offer'	<i>tarjoan</i>	<i>tarjoa</i> [ʔ]
<i>teh/dä</i>	'to make'	<i>teen</i>	<i>tee</i> [ʔ]
<i>juos/ta</i>	'to run'	<i>juoksen</i>	<i>juokse</i> [ʔ]
<i>ajatel/la</i>	'to imagine'	<i>ajattelen</i>	<i>ajattele</i> [ʔ]
<i>harkit/a</i>	'to consider'	<i>harkitsen</i>	<i>harkitse</i> [ʔ]
<i>paet/a</i>	'to flee'	<i>pakenen</i>	<i>pakene</i> [ʔ]

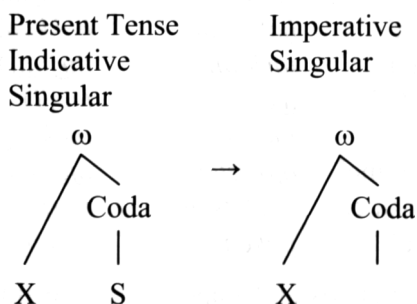
Comparing infinitive stems and imperatives, we find a range of alternations many of which exemplify the so called "Consonant Gradation", a historical rule which affected stops in closed syllables. However, the exceptionless generalization emerging from the data in (41) is that imperatives – apart from the final "reflex" – are identical to the first person singular without the *-n*.¹⁸ In fact, the generalization works for any finite verb form, where the stem ends in a closed syllable, as is illustrated in (42):¹⁹

- (42) SG 1 *an.nan*
 2 *an.nat*
 3 *an.taa*
 PL 1 *an.nam.me*
 2 *an.nat.te*
 3 *an.ta.vat*

Historically, the identity effect shown in (41) is of course caused by the syllable structures in the individual forms: both the imperative *-k* and the first person *-n* (as well as *-m* and the second person *-t*) close the stem-final syllable, thereby triggering Consonant Gradation. However, although the glottal stop or the geminate also close the syllable in imperative forms and could therefore serve as the synchronic trigger of Consonant Gradation, it seems implausible that Finnish speakers fail to exploit the identity patterns illustrated in (41) and tediously derive imperative forms "from scratch" (cf. the related discussion of the Icelandic data). Rather, it is likely that the historical reflex of the imperative suffix described in (39) (i.e. gemination or the glottal stop) has been re-

analyzed as a synchronic reflex of syllable closure in present tense paradigms described in (43):

(43) Standard Finnish

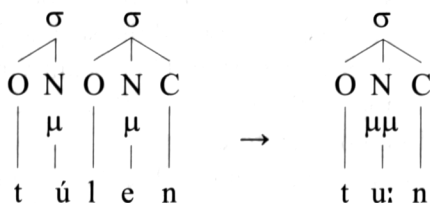


Some evidence for reanalysis relates to colloquial reductions of high frequency verbs such as *tule-* ‘come’, *mene-* ‘go’ and *ole-* ‘be’, illustrated in (44):

(44) SG	1	<i>tu.len</i>	<i>tuun</i>
	2	<i>tu.let</i>	<i>tuut</i>
	3	<i>tu.lee</i>	<i>tu.lee</i>
PL	1	<i>tu.lem.me</i>	<i>tuum.me</i>
	2	<i>tu.let.te</i>	<i>tuut.te</i>
	3	<i>tu.le.vat</i>	<i>tu.le.vat</i>

Like Consonant Gradation, “High Frequency Reduction” is sensitive to syllable closure. The rule entails the loss of a short unstressed vowel and the preceding sonorant (if there is one), such that only the mora remains:

(45)



The fact that High Frequency Reduction also applies in the related imperative forms in Standard Finnish (e.g. *tuu*[ʔ]) could of course be attributed to the final glottal stop, which closes the syllable. However, reduced imperatives such as *tuu!* ‘come’ also occur in Southwestern

dialects, where the crucial prerequisite of syllable closure is not given. Another argument concerns the imperative of the verb *nähdä* 'to see'. This verb also undergoes High Frequency Reduction in the first and second person finite forms as is shown in (46):

- (46) SG 1 *näen* > *nään*
 2 *näet* > *näät*
 3 *näkee* *näkee*

Here the rule should not apply to the imperative because the imperative of this verb is not used.²⁰ However, despite the lack of frequency, the imperative *nää*[ʔ]! (as opposed to *näe*[ʔ]!) is easily elicited from native speakers. This fact indicates that imperatives are synchronically derived by rule (43), which expresses a counter-iconic relation.

6. Conclusion

The non-arbitrary relation between meaning and sound observed in imperatives supports a central tenet of functionalist language theories: that there exists a unity of form and function (cf. Bybee 1985). In this paper, I have presented evidence from five languages that imperatives are formed by clipping final segments from independently existing, inflected verb forms. The imperatives in these languages are usually analysed as based on stems (rather than surface word forms) to which zero marking or suffixation is applied. I conclude that the mode of marking in these languages is more homogeneous than is commonly assumed.

Evidence for word formation based on inflected word forms supports the notion of the paradigm consisting of related surface word forms (cf. Vennemann 1974). The relevance of paradigms is also supported by the observation that base selection can require systematic comparison of at least two distinct members (cf. German, where imperatives are based on second person forms only if that form includes (a) correspondents to all consonants occurring in first person forms and (b) a stem vowel which corresponds to that of the first person with respect to the feature [\pm front]).

Since the frequency with which imperatives are formed by clipping can be established only on the basis of a far larger and more varied

sample of languages, the contribution of this study lies mainly in alerting researchers to focus their attention on proper identification of base forms.²¹ Specifically, the possibility should be taken into account that a word can serve as a phonological base, without contributing morphological features to the derived form (cf. Icelandic, where the features third person, plural, preterite are clearly not part of the imperative meanings). The identification of phonological bases should be guided by phonological criteria alone, specifically, the occurrence of systematic identity patterns which cannot be explained as the result of rule application to forms in isolation, including violations of canonical prosody.²²

The claim that a phonological base must not necessarily form a semantic base – anticipated by Priscian and other grammarians – in one respect contradicts the tenet of the unity of form and function in functionalist theories (supported by the evidence for counter-iconicity). An important question here is whether “Priscian rules” arise only under certain phonological conditions.²³ In two cases (Icelandic, Finnish), the choice of the base forms appears to have been determined by fortuitous identity patterns in surface forms, which spares the learner the effort of applying difficult morphophonological rules. When constructing a rule based on an identity relation between two slots in the paradigm, there is of course the question of which form is chosen as a base and which is derived. The very limited sample suggests that imperatives are based on indicatives rather than vice versa (cf. the innovative Icelandic imperatives in (30c)). As for imperatives, a preference for counter-iconic formation may also cause the selection of semantically unmotivated base forms.

Confirmation of the tentative conclusion that imperatives are preferably formed by clipping would be remarkable in that imperatives are possibly the only inflectional category exhibiting this property.²⁴ Formation by clipping would clarify Greenberg’s (1966) characterization of imperatives as ‘impure stems’.

Notes

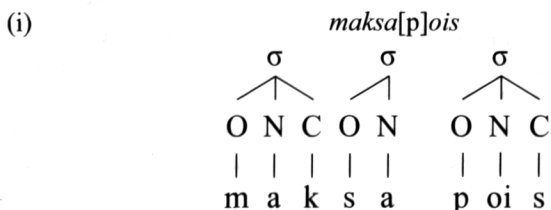
- * I would like to thank Ulrich Groenke, Lutz Gunkel, Tuija Hämäläinen, Martin Haspelmath, Marja Järventausta, Magnús Pétursson, David Restle, Roger

Schwarzschild, Dietmar Zaefferer, and an anonymous reviewer for help and discussion.

1. Assuming that the rule in (1) is intended as a redundancy rule (rather than a transformation), it fits into Vennemann's (1974) concept of a mental lexicon consisting of only surface word forms. The question of whether a word can be the phonological base of another word, without also being the semantic or morphosyntactic base, is not explicitly discussed there, but part of the discussion of the example from Granadense (cf. 1974: 353) suggests that such divergences are unexpected.
2. Not surprisingly, linguists with a strong interest in phonology are exceptions here, cf. the 'rules of referral' discussed by Zwicky (1991), Stump (1993). Steriade (1999) introduces the notion 'split base effect', which says that the phonological, morphosyntactic, and semantic notion of a base need not coincide. Needless to say, to 'morpheme-morphologists' the rule in (1) is an absurdity.
3. I dispute the claim that the main syntactic characteristic of imperatives is the optionality of the subject (cf. Donhauser 1986, Eisenberg 1998). Clearly, polite imperatives in German such as *Hören Sie!* with an obligatory subject fall in the same category as subjectless imperatives like *Hör!*. In Icelandic, all imperatives have an obligatory subject clitic.
4. Korhonen cites Révész (1946: 136), who argues that imperatives are prelinguistic.
5. See Benua (1995) for a discussion of the correspondence in surface structure within Optimality Theory.
6. Mikkelsen writes: „Digterne lade undertiden den sidste Medlyd i Udtalen gaa over paa en følgende med en selvlyd begyndende Stavelse....Slige Former omskrives dog i Reglen“ (1894: 209).
7. For Old High German, reference to the first person singular present indicative accounts for the imperative stem vowel in all strong verbs. Assuming that the base is identified correctly, the formation involves clipping of the final vowel and is accordingly counter-iconic (e.g. *nimu* → *nim!*, *rāto* → *rāt!*). Significantly, vowel raising was at no point in time phonologically conditioned in imperative forms (as opposed to the second and third person singular). Class I weak verbs are based on second or third person present indicative with clipping of the final consonant (*suochit* → *suochi!*). Class II and Class III weak verbs require vowel shortening in addition (*salbôt* → *salbo!*, *habêt* → *habe!*).
8. According to Drosdowski (1984: 174), such forms were used frequently by Goethe and exclusively by Heine.
9. Needless to say, the argument applies only to those speakers who have regular vowel raising in the finite forms but not in the imperative form. For the not particularly frequent verbs *fechten* and *flechten* there are colloquial variants without raised vowels, which indicate that these verbs are about to regularize. Perhaps this regularization is partially triggered by the imperative formation,

which for the deficient stems *fīchst*, *flichst* is based on the first person singular.

10. According to Bielenstein (1883: 48, 128), clipping of stem consonants in imperative forms, which are based on the second person present tense indicative, occur occasionally in Latvian.
11. German differs thus from Norwegian Bokmål or Danish in that pronounceability is always ensured in imperatives (instead of avoiding unpronounceable forms).
12. The occurrence of the schwa is caused by a constraint against adjacent stops with identical place features, which applies to third person singular and second person plural forms (e.g. *arbeit*[ə]t, rather than **arbeitt*, *red*[ə]t rather than **redt*). The occurrence of the schwa in the Second Person singular forms is due to analogy.
13. The form *siehe* as in *siehe oben* 'see above' is not an exception to rule (26) (the relevant finite forms of the verb *sehen* are *sehe*, *siehst*, *sieht*); rather *siehe* is not an imperative. A phrase like "siehe oben" does not express a command to the reader but rather informs that additional relevant information appeared earlier in the text.
14. Very similar rules are stated in Zifonun, Hoffmann, and Strecker (1997: 1725). Eisenberg (1998: 194, 195) attempts to capture the Priscian generalization without positing a Priscian rule when he writes that imperatives singular are formed by raising the vowel in those strong verbs which also undergo vowel raising in the present tense and that they are without ending then. This description raises the question of why these dependencies exist.
15. It is of course also true that the allomorphy rules for cliticization are simple for class IV verbs, because the dental fricative occurs intervocalically. As a result, speakers have little to gain from resorting to preterite forms as bases for imperative formation.
16. Cf. the minimal pair *maksa*[pp]ois! 'Pay, will you!' versus *maksa*[p]ois 'Liver away' from *maksa* 'liver' and *pois* 'away'. The context generally given is an operating room where the surgeon discovers that the liver cannot be saved [Marja Järventausta, p.c.].
17. The contrast between (40a) and the expression *maksa pois* 'liver away' is represented as follows (cf. the preceding footnote):



18. This is the rule given in Karlsson (2000) and, less explicitly, in Terttu (1993). By contrast, Schmeidler (1989) and Abondolo (1998) are so averse to Priscian rules that they posit rules for deriving imperatives from the infinitive stem.
19. That is, the stems in the first and second person singular and plural are always identical.
20. The form *katso*[?] 'look!' is used instead.
21. On strictly phonological grounds, Prince (1975) identifies perfect forms as the base for clipped imperatives in Tiberian Hebrew.
22. Sometimes the crucial effects will be observable in only a tiny fraction of all imperative forms and are therefore easily overlooked. For example, in Norwegian Bokmål only verbs with a stem-final cluster with increasing sonority exhibit proof of clipping (rather than stem-based derivation).
23. For example, the choice of present infinitive active forms as bases for *m*-suffixation in Latin may be partially due to the fact that such forms consistently end in a vowel (cf. (1)). This is because a non-coronal consonant like *m*, which may not occur as an appendix, is most likely to satisfy constraints on coda structures if a vowel precedes.
24. Perhaps counter-iconicity is also characteristic for vocatives which would mean that clipping is associated with direct address.

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